

4931

4932

Diag. Cht. No. 1001-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey

Hydrographic

Field No.

Office No.

4931-32

LOCALITY

State

Florida

General locality

East Coast of

Locality

Florida - North
of Cape Canaveral

1929

CHIEF OF PARTY

G. C. Mattison

LIBRARY & ARCHIVES

DATE

4932

4931

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

C. & G. SURVEY
L. & A.
NOV 21 1929
Acc. No.

REG. NO.

4931

HYDROGRAPHIC TITLE SHEET

Offshore

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 2

REGISTER NO.

4931

State FLORIDAGeneral locality EAST COASTLocality NORTH OF CAPE CANAVERAL - OffshoreScale 1:120,000 Date of survey 2/18/29 to 6/21/29, 1929Vessel LYDONIAChief of Party G. C. MattisonSurveyed by G. C. MattisonProtracted by E. R. McCarthySoundings penciled by E. R. McCarthySoundings in fathoms feetPlane of reference MEAN LOW WATER

Subdivision of wire dragged areas by

Inked by

Verified by W. F. Malnate - M. G. RickettsInstructions dated December 3, 1928Remarks: Dead reckoning sheet - plotting checked in the field.

See Rept

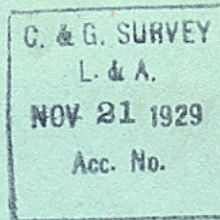
1 BS.

2 Sky Vol.

1 Cont. H.R.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

Offshore

REG. NO. 4932

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 3REGISTER NO. 4932State FLORIDAGeneral locality EAST COASTLocality NORTH OF CAPE CANAVERAL - OffshoreScale 1:40,000 Date of survey 2/14 to 5/2, 19 28Vessel LYDONIAChief of Party G. C. MattisonSurveyed by G. C. MattisonProtracted by E. R. McCarthySoundings penciled by E. R. McCarthySoundings in fathoms feetPlane of reference MEAN LOW WATER

Subdivision of wire dragged areas by _____

Inked by _____

Verified by M. G. RickettsInstructions dated December 3, 19 28Remarks: Dead reckoning sheet - plotting checked in the field.

DESCRIPTIVE REPORT
to accompany

HYDROGRAPHIC SHEETS # and #

(FIELD # 2 & 3)

AUTHORITY:

Instructions from the Director dated December 3, 1928.

LIMITS:

Sheet # 3 extends from junctions with sheet # 4803 on the northward and sheet # 1 on the westward, to a line bearing about $69^{\circ}T$ from a point five miles south of Cape Canaveral on the southward, and about a quarter mile beyond the twenty fathom curve on the eastward.

Sheet # 2 extends from the junction with sheet #4803 on the northward and sheet # 3 on the Westward, to a line bearing about $68^{\circ} T$ from a point five miles south of Cape Canaveral on the southward, and to a line about ten miles beyond the hundred fathom curve on the eastward.

METHODS AND RESULTS:

Dead reckoning methods were used on both sheets.

A row of buoys at twenty fathoms were located by dead reckoning from runs starting and closing on the inshore line of buoys which were located by sextant cuts.

Two locations were made on all buoys except the most southerly one and final positions determined by a weighted mean.

From these buoys the offshore sheet(# 2) was controlled all runs beginning and closing upon them.

The average difference between two independent locations of the same buoy was 0.15 mile which gives a probable error of 0.08 mile. The largest closure on buoy location runs was 1.02 miles and the smallest zero.

The average closure for all runs on sheet # 3 was 0.36 mile which computes out to an error of slightly less than 0.02 mile per mile of dead reckoning. The average closure for the short runs to one hundred fathoms on sheet # 2 was 0.77 mile which computes out to an error of 0.023 mile per mile of dead reckoning. In computing the mileage errors the portion of the runs controlled by fixed positions were not included.

SURVEY METHODS--FIELD DETAILS:

COURSES:

The ship was swung every 15 degrees for compass deviations on January 18, March 25, and April 19 using sun azimuths. The values obtained on January 18 were used for sounding runs made between February 14-20 inclusive and as

the swing on March 25 was poor the values obtained on April 19 were used the remainder of the season. No opportunity was afforded to swing ship at the end of the season.

The variation used was taken from the charts of the working grounds and isogonic lines interpolated for every tenth of a degree on the boat sheet.

For buoy locations the standard compass was read to the nearest degree every fifteen seconds throughout the run and for sounding runs every minute. The courses used for plotting were obtained by averaging these readings. The courses were carried out to tenths of degrees and considering the large number of headings obtained this is not thought to be a refinement.

DISTANCE : (Logs)

The distance used was that determined by the mean of two logs, one streamed on either quarter. The logs were read at every position and at fifteen minute intervals. These were rated on January 27, March 21, and June 24. The values obtained were used as shown in the table below.

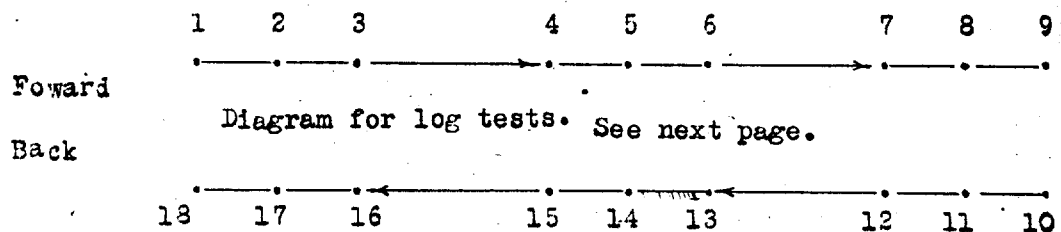
<u>Date test</u>	<u>Dates used</u>	<u>Factors</u>	
		<u>#191</u>	<u>#193</u>
Jan. 27	Feb. 14 to 20	0.976	0.958
March 21	April 11 to May 2	0.962	0.951
June 24	June 13-21	0.980	0.951

The log registers were placed on the wings of the bridge and the log lines led thru a guide on an outrigger placed about fifty feet forward of the stern and slightly above the level of the rail. This guide was for the purpose of keeping the log line from blowing against the ships side and also to prevent the line from fouling under the counter on a turn.

The arrangement was satisfactory except on the turns where the line would bind in the guide and prevent any distance from being registered on the indicator while the rotor accumulated turns. When the ship steadied on the new course it was necessary to start the governors running after which they would spin rapidly for a minute and gradually settle to normal at which point the logs were read.

As the time the ship steadied on the new course and the time the logs became normal were both carefully noted the arrangement caused no trouble as the log reading at the time the ship steadied on course could easily be computed quite accurately.

Toward the end of the season the following arrangement was used; At the beginning of the turn a box of some sort or float was thrown overboard. When the logs were normal a bearing and vertical angle were taken to it which gave directly the correct relative distance this proved quite satisfactory.



For log rating tests the ship ran parallel to the beach close inshore where signals could be easily seen and strong fixes secured. Positions were obtained and logs read at each of the points indicated in the diagram. The backward and forward runs were then combined in the following fashion: 1-4 15-18, 2-5 14-17, 3-6 13-16, 4-7 12-15, 5-8 11-14, 6-9 10-13, 1-7 12-18, 2-8 11-17, 3-9, 10-16, equations written for each group, and solved simultaneously for the log factor in accordance with the usual formula $Lx \pm Ty = D$ where L is the log distance, x the log factor, T the time, y the current, and D the true distance. To obtain the values of D (the true distance) the positions were plotted on an aluminum sheet and the distances scaled. This gave 9 factors for each run and as the run was repeated three times a total of 27 factors for each log. The accepted value was a mean of the total.

In subsequent log tests the positions 7-12 were omitted and the computations considerably lessened. It was found that the factor obtained by omitting these positions differed but slightly from that obtained including them.

CURRENTS :

Current observations were made inshore and at the twenty fathom curve by anchoring the ship and measuring the strength of the current by means of a pole and line and observing the direction by means of a bearing on the pole. The current pole had a depth equal to the draft of the ship.

Offshore observations were made in the following manner:- A buoy was anchored and after it had brought up on its cable a current pole was dropped near it. The ship then drifted taking vertical angles and bearings on the pole and buoy at regular intervals. The positions of the buoy and pole relative to the ship were then plotted on polar coordinate paper, distances scaled, and current computed.

Observations were made to hundredths of mile.

WIND :

At anchor wind velocity observation were made with the anaeometer and its true direction observed. Underway the apparent velocity and the true direction were observed every fifteen minutes and corrected for the course and speed of the ship. An automatic anaeometer record was also obtained.

MISCELLANEOUS :

Bearings were taken whenever possible but for the greater part could not be taken either on account of low visibility or rough seas. As the dead reckoning was, as a rule, done on dark days not favorable for fixed position work.

Sun sights were taken on some of the runs beyond the hundred fathom curve.

At anchorages marker buoys consisting of a five gallon gasoline tin with a flag attached for a float, six thread line for anchor line, and scrap iron for anchor were used to keep the position. This buoy was dropped from the stern at the end of the line just as the logs were read, the ship ran a short distance past, hauled in the

logs, and anchored for current observations. As the ship did not change course until past the buoy the logs were not fouled. If a survey buoy were planted in the vicinity it was located by a vertical angle and bearing on the marker buoy which was corrected for slope if necessary. Departures for the return run were taken from these buoys.

At the hundred fathom current stations this type of buoy was found too light for the current encountered so a steel drum with stranded wire for anchor line and a car coupling for anchor was used. It was dropped over the stern in similar fashion to the light buoy until the latter part of the season when the wire was wound around the drum and the whole buoy, anchor and wire was thrown over the stern. This arrangement had the advantage of there being no danger of the wire becoming kinked while paying out and as a float was dropped at the same time as the drum of being able to eliminate a source of error due to the long scope of the buoy (300 fathoms)

SOUNDING RECORD :

The record was kept in two volumes; both being sounding records with headings changed. One record, the positions record, was kept on the bridge and contained the positions, log readings, revolution counter readings, wind observations, current observations and remarks relative to the plotting of the line. The second record, the sounding record, was kept in the radio room where the fathometer is located and contained the fathometer soundings, standard compass readings, serial temperatures and salinity observations.

No position numbers were shown in the sounding record. Two clocks were used one on the bridge and one at the fathometer. These were checked at every anchorage and were kept in very close agreement.

PLOTTING THE SHEET :

The runs were abstracted on form 612 which was modified slightly to permit the showing of two logs, the adjustment for closure, and any arbitrary corrections made. The form is self explanatory except that the columns headed "Transfer" was used to show the turns unless otherwise indicated. On the back of each form is explained the details of the plotting and any assumptions made.

The course was plotted with parallel rulers which had been tested for accuracy. Courses, variations, and deviations were all applied in degrees and tenths and the true course plotted to tenths.

Log factors were carried out to three decimal places. Distances were carried out to hundredths of miles and plotted with beam compass or dividers.

Current was applied at each change of course and at points where it was assumed to have changed. Time on course was taken out to tenths of hours and currents computed and plotted to hundredths of miles. Where the course was changed between current observations a straight line interpolation was assumed. On sheet # 2 it was usually assumed that a current of one knot in a northerly direction was met with at the edge of the Gulf Stream (assumed as the point at which tide rips or large masses of seaweed were found) that an increase a knot or a knot and a half took place in the next two miles, and that it increased gradually from this point to one hundred fathoms where a current observation was made. Beyond the hundred fathom curve a gradual increase was assumed to the run across the end of the line

where it was assumed as constant. The same assumptions were made on the run in.

Leeway was applied normal to the course. Time here as in current corrections was taken to tenths of hours and leeway computed and plotted to hundredths of miles. For leeway corrections a value of two-tenths of a mile per hour for a wind velocity of fifteen miles normal to the ship was assumed as no observations to determine its value were made. A correct value for the leeway was not absolutely essential as the wind as a rule remained constant during runs when the leeway error was appreciable and in these cases the error would be taken up in closure. It was also assumed that no leeway was felt for a wind velocity of less than four miles. With these two points a theoretical curve for leeway was constructed by proportioning intermediate values to a curve of wind pressures taken from Bowditch.

On turns of less than thirty degrees the turn was plotted as a broken line, the break being taken as the mean log reading for the beginning and end of the line. Over thirty degrees, the turn was plotted as a course and distance, the course being taken as the mean of the courses on either side of the turn and the distance being the difference between the log readings at the beginning and the computed log reading at the end of the turn. In some cases where this distance was obviously incorrect an arbitrary value of 0.14 mile for a ninety degree turn was assumed (The 1928 value) Where a vertical angle and bearing were taken to a float the course was projected back a short distance from the position as the ship was on course for a minute as a rule before the logs became normal and the angle was taken.

Marker and current buoys at the twenty and hundred fathom curves were given a 1:3 scope and where the current was appreciable it was necessary to make a correction for it. As the depth was known the horizontal component of the scope was computed assuming the cable as a straight line and seventy five percent of it taken as the correction for scope.

Toward the latter part of the season at the hundred fathom curve this correction was determined quite accurately by the following system of current observations, the wire used as anchor line for the buoy was wound around the drum and a float dropped overboard with the drum the time being noted. When the buoy had brought up on the line the float began to move away from the drum and the time was again noted. Current observations were then made and the correction for scope computed by applying the current correction for intervals between the time the buoy was dropped until it brought up.

The general scheme for plotting the sheets was as follows: On sheet # 3 the buoy locations runs on the offshore buoys were first plotted and their final positions determined by weighted means. The remainder of the dead reckoning was then plotted and closed in on the buoys as correct. On the sheet # 2, the 20 fathom buoys were transferred from the sheet # 3, the short runs to the hundred fathom curve plotted, and this curve determined. The long runs were then plotted making an adjustment to the hundred fathom curve as determined by the short runs on days where no currents were observed.

Closure was adjusted in proportion to time except in a few cases where it was known that a larger portion of the error occurred in certain places.

The line was adjusted to bearings where these were available.

In plotting soundings, log distances were plotted and shown with a blue dot. Soundings were plotted on time between these

Sun sights where used were taken only as a check on the line except on B Day where several were combined for a line of position.

(6)
4932

DISCREPANCIES AND CROSSINGS : (Sheet # 3)

The inshore end of the lines overlapped sheet # 1 considerably in some places. It was compared with smooth sheet # 1 as far south as latitude 28-52. The fathometer soundings check the hand lead fairly well in most cases and where a discrepancy does occur it usually is the first or second sounding where it is of little importance as the hand lead work will probably be accepted. Where the lines cross the offshore ends of the hand lead work the soundings check well as a rule.

The lines cross on the sheet in but few places and check within a fathom which is as close as can be expected.

The line from 8-17 J seems to be about one to two fathoms deep as shown by ^{check} ~~the~~ lines run on Day and where it crosses hand lead work. It is recommended that these soundings be rejected. See also note at end of Day in position record.

(Sheet # 2) - 4931

Crossings at the junction with sheet # 3 are good in most cases checking exactly. There are no crossings on the sheet except at "B" Day where the soundings check within two fathoms at a 225 fathom crossing.

COMPARISONS WITH PREVIOUS SURVEYS :

Apparently no accurate surveys were made in the area covered by these sheets as very few of the soundings shown on the chart check. The hundred fathom curve is from two to eleven miles out of position.

Both sheets were compared with sheet # 4803 with the differences noted: The soundings on the southerly line on sheet # 4803 between Lat. 80-28 and 80-20 are from one to two fathoms shoaler than lines on either side of it on sheet # 3 and also one to two fathoms shoaler than the line to the northward of it on sheet # 4803. While it is possible that these 14 fathom soundings with a sudden break to 18 fathoms are correct as no line was run closer than a half mile to them they look rather suspicious and it seems more probable that the fathometer was being read by an inexperienced observer and that they are incorrect. It is recommended that the soundings on this line from the 14 fathom sounding east of Lat. 80-28 to but not including the 16 fathom sounding west of Lat. 80-20 be rejected.

line rejected as recommended
RJ

The most southerly line on "H" Day sheet # 4803 checks the two lines on "B" Day sheet # 2 within a fathom to one hundred fathom, shows 134 fathoms where sheet # 2 shows 117, shows 220 fathoms at the two hundred fathom curve, shows 223 at 217, 221 at 218 and checks again at 100 fathoms. Neither day was particularly well controlled, H day having current observations at the inner end of the line and several sets of star sights at the hundred fathom curve none of which checked the other and "B" day having current observations at the inner end of the line and some sun sights on the run across the outer end. The boat sheet adjustment shows the inward run on H Day practically coinciding with the inward run on B Day and the soundings checking almost exactly. However in this case the two hundred fathom curve takes a sharp turn westward which looks suspicious. On H Day also the fathometer was not working properly as no soundings were obtained between 104 and 208 fathoms on the outward run and several suspicious soundings are shown across the outer end of the line. By changing the adjustments on both days it is probable that they may be made to agree, however "B" Day could not be changed a great deal without assuming

that the current changed between the time the ship passed the hundred fathom curve until she returned to it and while this is possible it is not consistent with other assumptions. As the crossing at 225 fathoms is quite good and the hundred fathom curve checks fairly well with sheet 4803 it is recommended that this years work be accepted over last years.

FATHOMETER :

The fathometer was working well during the season. All soundings were made using the red light method the white light being used only as an approximate check.

Temperature and salinity observations and corrections are submitted as a separate report.

Slope correction is less than one percent.

DANGERS AND ANCHORAGES :

There are no dangers to navigation in area surveyed.

The ship anchored in numerous places in the area covered by sheet # 3. Bottom was sandy and holding fairly good.

MISCELLANEOUS :

A form to replace form 612--Precise Dead Reckoning--is submitted as a separate report.

Respectfully submitted,

E. R. McCartney
E. R. McCartney
Jr. H & S. Engineer.

Approved and forwarded:

G. C. Mattison
G. C. Mattison
Commanding Officer.

STATISTICS
FIELD SHEET # 2

1929

Day	Date	Stat. Miles	Soundings	Positions	Vessel
A	Feb. 18	37.8	231	14	Ship
B	19	70.9	209	14	Ship
C	20	34.8	78	14	Ship
D	Apr. 12	62.1	155	22	Ship
E	May 15 --- Run for experimental purposes.				
F	June 13	47.5	122	23	Ship
G	14	59.4	143	16	Ship
H	21	42.5	101	21	Ship
TOTALS		355.0	1039	124	

REMARKS :

For log tests see sheet # 3

Nineteen serial temperatures

Area surveyed 1492.0 square miles.

STATISTICS

Field Sheet No. 3

1929

DAY	DATE	MILEAGE	SOUNDINGS	POSITIONS	VESSEL	REMARKS
A	Feb. 14	59.5	125	22	Ship	
B	15	56.5	131	22	Ship	
C	16	37.8	75	17	Ship	
D	18	15.0	44	9	Ship	
E	19	26.9	60	10	Ship	
F	Feb. 20	34.8	120	14	Ship	
G	April 11	66.5	140	36	Ship	
H	12	12.2	39	11	Ship	
J	13	55.2	147	43	Ship	
K	18	28.0	60	21	Ship	
L	May 2	41.3	76	30	Ship	
TOTALS		433.70	1017.0	256		

Three log tests and thirty three serial temperatures

Area surveyed 359.0 square miles.

TIDAL NOTE TO ACCOMPANY HYDROGRAPHIC SHEET NO.

And No.

(Field # 2 and # 3)

The primary tide gauge at Daytona Beach Florida was used for the reduction of soundings. In accordance with instructions dated December 3, 1928 a time allowance of one hour earlier than tabulated heights at Daytona was made for reduction of soundings on both sheets.

Location -- Lat 29-13.6 Long. 81-00.4

Highest tide observed)

) Records sent to office.

Lowest tide observed)

) 9.4 on tube gauge

Plane of reference on staff) 1.0 on tide staff

) 2.8 on office tabulations.

POSITION OF SURVEY BUOYS

Positions of the inshore buoys are tabulated for convenience. They were taken directly from the sounding records.

NAME	LAT.	METERS	LONG.	METERS.
ART	29-06	+1324 ✓	80-38	-1132 ✓
BOY	29-04	-42 ✓	80-36	-924 ✓
CAT	29-02	-1332 ✓	80-34	+832 ✓
DOG	28-58	+1810 ✓	80-34	-498 ✓
EGG	28-56	+454 ✓	80-32	+808 ✓
EAR	28-56	+72 ✓	80-32	+1160 ✓
FID	28-54	-136 ✓	80-32	-940 ✓
GAS	28-50	+1680 ✓	80-30	-340 ✓
HER	28-48	+268 ✓	80-28	+292 ✓
INK	28-46	-1188 ✓	80-26	+740 ✓
JUG	28-42	+1088 ✓	80-24	+1092 ✓
KIX	28-40	+700 ✓	80-24	-1476 ✓
LIT	28-38	+676 ✓	80-22	-406 ✓
MIX	28-36	-644 ✓	80-20	+48 ✓
NUT	28-32	+1252 ✓	80-20	-1356 ✓
OAR	28-30	-768 ✓	80-18	+1024 ✓
PIE	28-56	+856 ✓	80-18	-160 ✓

Positions of the offshore buoys were scaled directly from Sheet # 3

ABEL	29-08	+1772 ✓	80-18	+1224 ✓
BOAZ	29-04	-1472 ✓	80-16	+900 ✓
CAIN	28-58	-276 ✓	80-16	-832 ✓
DODO	28-52	+184 ✓	80-14	+332 ✓
ESAU	28-46	-548 ✓	80-12	+1712 ✓

Faro was located by sextant fix--See index Vol # 1

Copied ERM ✓
ReCopied JSH ✓
Copy Check ERM ✓

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4931 (O.R. sheet)

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet 256
Number of positions checked 256
Number of positions revised
Number of soundings recorded 1017
Number of soundings revised
Number of signals erroneously
plotted or transferred

Date: Feb. 3, 1930

Cartographer: G. Pizzari

December 7, 1929.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4931

Locality: East Coast Florida (Vicinity of Cape Canaveral)

Chief of Party: G. C. Mathison in 1929

Plane of reference is mean low water, reading

2.1 Ft. on tide staff at Daytona Beach

~~St. Augustine Beach~~

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

H. A. Warner
Chief, Division of Tides and Currents.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4931.
North of C. Canaveral - Florida.
Instructions - Dec. 3, 1928 (Lydonia).

Chief of Party - G. C. Mattison.
Surveyed by - G. C. Mattison.
Protracted by - E. R. McCarthy.
Verified and inked by - G. Risegari.

1. The records conform to and the plan and character fulfill the requirements of the General Instructions.
2. The plan and extent of development satisfy the Specific Instructions.
3. The crossings on the sheet are satisfactory and are few.
4. The usual depths curves can be completely drawn in.
5. The field plotting was satisfactory and fully complied with the General Instructions.

6. The juncture with H. 4932 (W) is satisfactory.

The juncture with H. 4803 (N) is partly inked on H. 4931 while the remaining soundings of H. 4803 are to be further studied by the reviewer of that sheet. The work on H. 4803 (2nd sheet) is somewhat questionable and does not make a good juncture with H. 4931. The work on H. 4803 (1st sheet) however, makes a better juncture with H. 4931 and with these facts in mind, the reviewer of H. 4803 will have to make a proper decision (See supplemental report regarding these soundings).

The work on H. 4803, 1st or 2nd sheets, is understood to be somewhat doubtful in the area in question. It appears that the current assumption for the D. R. work by the field party was too small in the 2nd sheet, although the rest of the sheet is considered satisfactory. The resulting adjustment brings the line too low and beginning with the 100 fathom sounding, eastward, the soundings make a poor crossing with H. 4931. The work on the 1st sheet in this area appears more probable and agrees very favorably with work on H. 4931, which work is considered very well fixed by relative depth curves, as well as the good crossing at the 225 fathom sounding and other checks.

There is no work adjacent on the East at this date.

There is no work adjacent on the South at this date.

7. The area between \odot Abel and \odot Boaz is insufficiently developed, though there is no reason to believe that further surveying is necessary in this area as the configuration and depths of the bottom appear uniform with adjacent lines and also because of such considerable depths.
8. Comparison with the work of older surveys shows up a number of discrepancies. This fact is noted by the field party described in descriptive report, page 6. The different depth curves appear in some places considerably out of position on the chart affected.

It is recommended that this work supersede the older work due to the inaccuracies resulting from the method of procedure used.

H. 4931.

9. Character and scope of the surveying - good .
Field drafting - good.

Reviewed by G. Risegari - Feb. 5, 1930.

Inspected: E. P. Ellis.

Approved: A. M. Sobieralski.

The use of buoys located by dead reckoning runs appears to furnish better control than old dead reckoning methods.

Supplemental Report.

The remainder of the line (13 to 36H) of H. 4803 was adjusted to agree with the better work of H. 4931 in this area. The resulting changes only required a slight adjustment of the line between positions 21H and 34H, which makes a very satisfactory agreement with H. 4931.

G. Risegari - Feb. 15, 1933.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *4832*

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet *256 (Dead Reckoning)*
Number of positions checked *Checked in field*
Number of ^{*1095*}~~positions~~ revised *11*
Number of soundings recorded *1017*
Number of soundings revised *42*
Number of signals erroneously
plotted or transferred *None*

Date: *Jan. 23, 1930*

Cartographer: *James J. German*

ECM

December 7, 1929

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
4 volumes of sounding records for

HYDROGRAPHIC SHEET 4932

Locality: East Coast Florida (North of Cape Canaveral)

Chief of Party: G. C. Mattison in 1929
Plane of reference is mean low water, reading
2.1 ft. on tide staff at Daytona Beach
~~Stacked Books~~

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.


Chief, Division of Tides and Currents.

Jan. 23, 1930

Section of Field Records
Report on Hydrographic Sheet No. 4932
North of Cape Canaveral - East Coast of Florida
Surveyed in 1929
Instructions dated Dec. 3, 1928

Chief of Party - G. C. Mattison
Surveyed by - G. C. M.

Protracted and soundings penciled by - E. R. McCarthy
Verified and checked by - J. T. Jarman

1. The records conform to the requirements of the General Instructions
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The field plotting was completed to the extent prescribed in the General Instructions
4. The few sounding line crossings which exist are satisfactory.
5. The information is sufficient for drawing the usual depth curves.

6. The junction with H4803 on the North is fair. See note on H4432 with reference to an overlapping line of this junction. (also see descriptive report, page 6). The other junction sheets have not been verified.

Remarks:

The recorded soundings on this sheet comply with par. 100 of the Hydrographic Manual. However, it is the contention of the verifier that soundings should be recorded on the even minute, half minute or quarter minute. By so doing the work would be greatly simplified and the sheet would present a much more uniform appearance. The scheme followed in recording data for this sheet necessitated separate volumes for the positions and soundings respectively. Consequently there were two different sets of time and due to the close adherence

to per. 100 the sounding time interval was very irregular. This irregular interval coupled with the log time which was sometimes taken on the fraction of a minute greatly slowed up the work of plating and verification. The above recommendations might not apply to all types of bathometer work but in the case of dead reckoning work, the adoption and adherence to some uniform method of recording so that position time and sounding time coincide would simplify the plating and verification and greatly increase efficiency.

DEPARTMENT OF COMMERCE.

AND REFER TO No. **11-WSW**

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

August 25, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4932

East Coast of Florida, North of Cap Canaveral

Surveyed in 1929

Instructions dated December 3, 1928 (Lydonia)

Fathometer Soundings

Chief of Party, G. C. Mattison.

Surveyed by G. C. Mattison.

Dead reckoning lines plotted by E. R. McCarthy.

Dead reckoning lines verified by M. G. Ricketts (In field)

Soundings plotted by E. R. McCarthy.

Verified and inked by J. T. Jarman.

1. The records conform to the requirements.
2. The plan, character and extent of the survey satisfy the general and specific instructions with a few exceptions.
 - a. The distance between some of the lines slightly exceeds the specified distance, but since these lines consist of a straight run from the inner line of buoys to the outer line of buoys and return, it would have been impractical to vary the distance between lines in the specified ratio to the depth.
 - b. There are a few fathometer soundings on the western limits of the work, in depths less than 13 fathoms.
3. While there are not many cross lines, the crossings are satisfactory.
 - a. The agreement of adjacent lines is generally good. The line from Position 18 B (near outer buoy Cain) to Position 19 B (about Lat. $29^{\circ} 53.0'$, Long. $80^{\circ} 28.6'$) does not agree well in the vicinity of the twenty fathom curve. While this line was run under unfavorable weather conditions it was not rejected.

4. The information is sufficient for drawing the 20 fathom curve.
5. The junction on the north with H. 4803 is satisfactory. The most southerly line on H. 4803 is from one to three fathoms shoaler than the line on either side of it on this sheet, H. 4932. While this work does not conclusively disprove this line, as the nearest line is not closer than $5/8$ miles, it makes it appear very doubtful and a portion of this line on H. 4803 was rejected as recommended by Mr. McCarthy on page 6 of this descriptive report.
 - a. The junction on the east with H. 4931 is satisfactory and the agreement good.
 - b. At the junction on the west with H. 4935, in general the fathometer soundings agree fairly well with the inshore vertical soundings. In some places the agreement is not so good and the fathometer soundings were omitted in these places where they failed to check the up and down soundings on H. 4935.
 - c. The junction with H. 4946 on the south is satisfactory.
6. The usual amount of field plotting was apparently well done by the field party. The plotting of the dead reckoning lines was checked in the field and the office verification consisted of merely checking the spacing of the soundings and the depths.
7. No additional work is necessary within the limits of this survey. The space between the two most southerly lines, which appears large, is filled in by a split line on H. 4946.
8. Reviewed by R. L. Johnston, April 21, 1930.

Approved:

A. M. Sobieralski
Chief, Section of Field Records (CHARTS)

J. Borden
Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO.

11-WSW

WASHINGTON

August 25, 1930.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4932

East Coast of Florida, North of Cap Canaveral

Surveyed in 1929

Instructions dated December 3, 1928 (Lydonia)

Fathometer Soundings

Chief of Party, G. C. Mattison.

Surveyed by G. C. Mattison.

Dead reckoning lines plotted by E. R. McCarthy.

Dead reckoning lines verified by M. G. Ricketts (In field)

Soundings plotted by E. R. McCarthy.

Verified and inked by J. T. Jarman.

1. The records conform to the requirements.
2. The plan, character and extent of the survey satisfy the general and specific instructions with a few exceptions.
 - a. The distance between some of the lines slightly exceeds the specified distance, but since these lines consist of a straight run from the inner line of buoys to the outer line of buoys and return, it would have been impractical to vary the distance between lines in the specified ratio to the depth.
 - b. There are a few fathometer soundings, on the western limits of the work, in depths less than 13 fathoms.
3. While there are not many cross lines, the crossings are satisfactory.
 - a. The agreement of adjacent lines is generally good. The line from Position 18 B (near outer buoy Cain) to Position 19 B (about Lat. $29^{\circ} 53.0'$, Long. $80^{\circ} 28.6'$) does not agree well in the vicinity of the twenty fathom curve. While this line was run under unfavorable weather conditions it was not rejected.

4. The information is sufficient for drawing the 20 fathom curve.
5. The junction on the north with H. 4803 is satisfactory. The most southerly line on H. 4803 is from one to three fathoms shallower than the line on either side of it on this sheet, H. 4932. While this work does not conclusively disprove this line, as the nearest line is not closer than $5/8$ miles, it makes it appear very doubtful and a portion of this line on H. 4803 was rejected as recommended by Mr. McCarthy on page 6 of this descriptive report.
 - a. The junction on the east with H. 4931 is satisfactory and the agreement good.
 - b. At the junction on the west with H. 4935, in general the fathometer soundings agree fairly well with the inshore vertical soundings. In some places the agreement is not so good and the fathometer soundings were omitted in these places where they failed to check the up and down soundings on H. 4935.
 - c. The junction with H. 4946 on the south is satisfactory.
6. The usual amount of field plotting was apparently well done by the field party. The plotting of the dead reckoning lines was checked in the field and the office verification consisted of merely checking the spacing of the soundings and the depths.
7. No additional work is necessary within the limits of this survey. The space between the two most southerly lines, which appears large, is filled in by a split line on H. 4946.
8. Review by R. L. Johnston, April 21, 1930.

Approved:

Chief, Section of Field Records (CHARTS)

Chief, Section of Field Work (H. & T.)

GRAPH TO DETERMINE
WIND VELOCITIES FROM
ANANOMETER.

F

VELOCITY - MILES PER HOUR

50

40

30

20

10

0

1

2

3

4

5

6

7

8

9

10

TIME - MINUTES

TIME

12

14

16

18

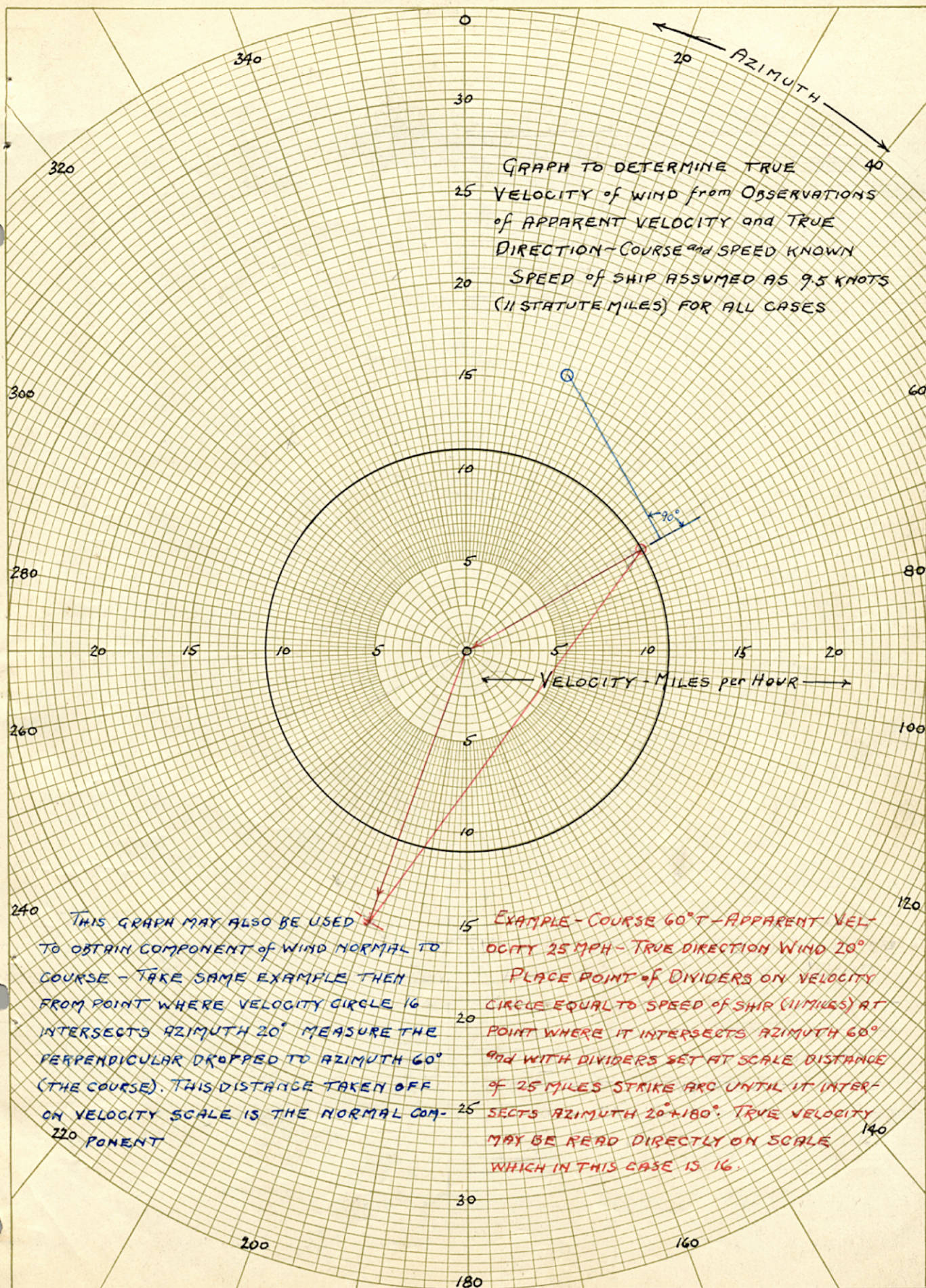
20

2

VELOCITY

4

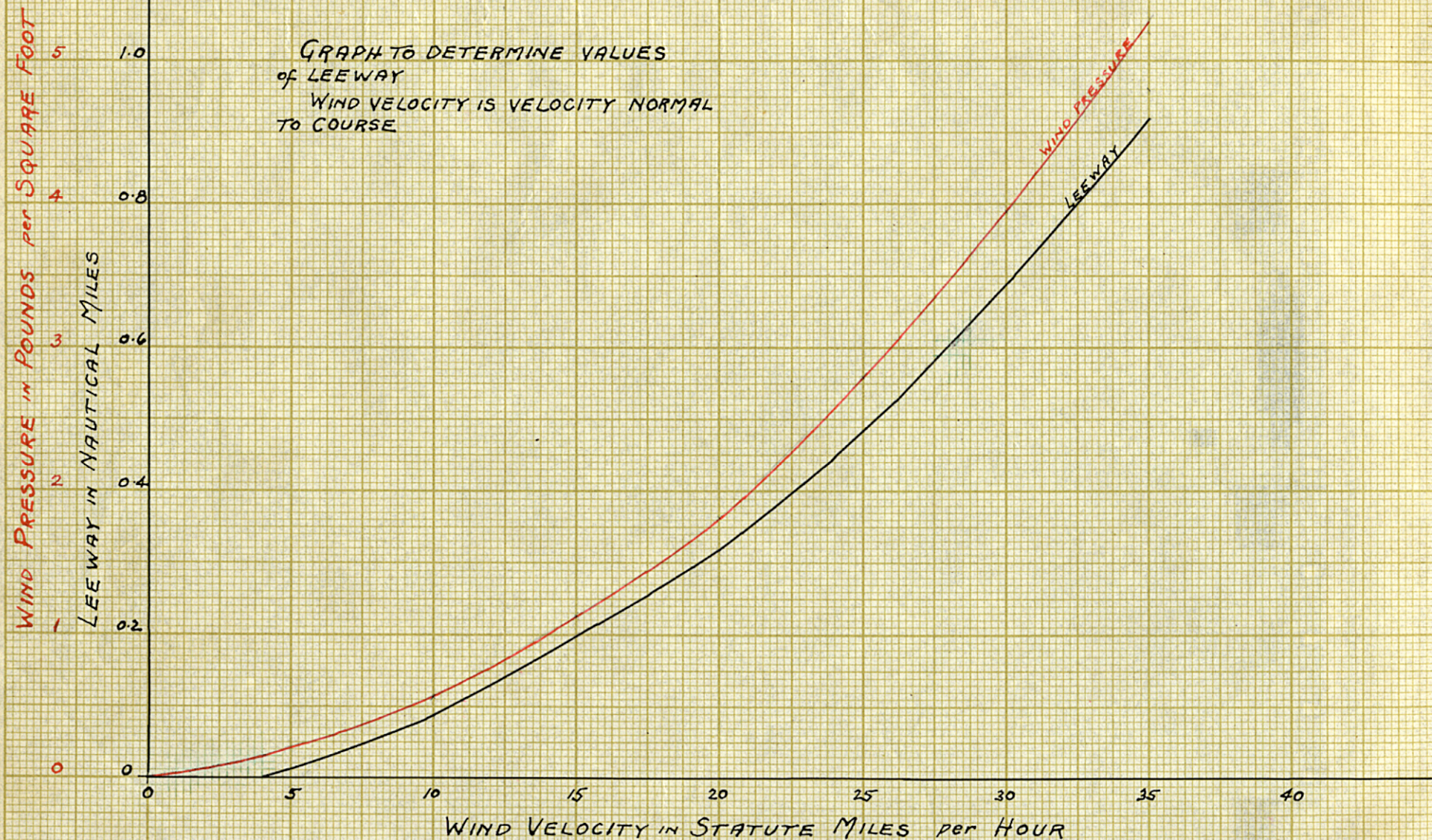
6

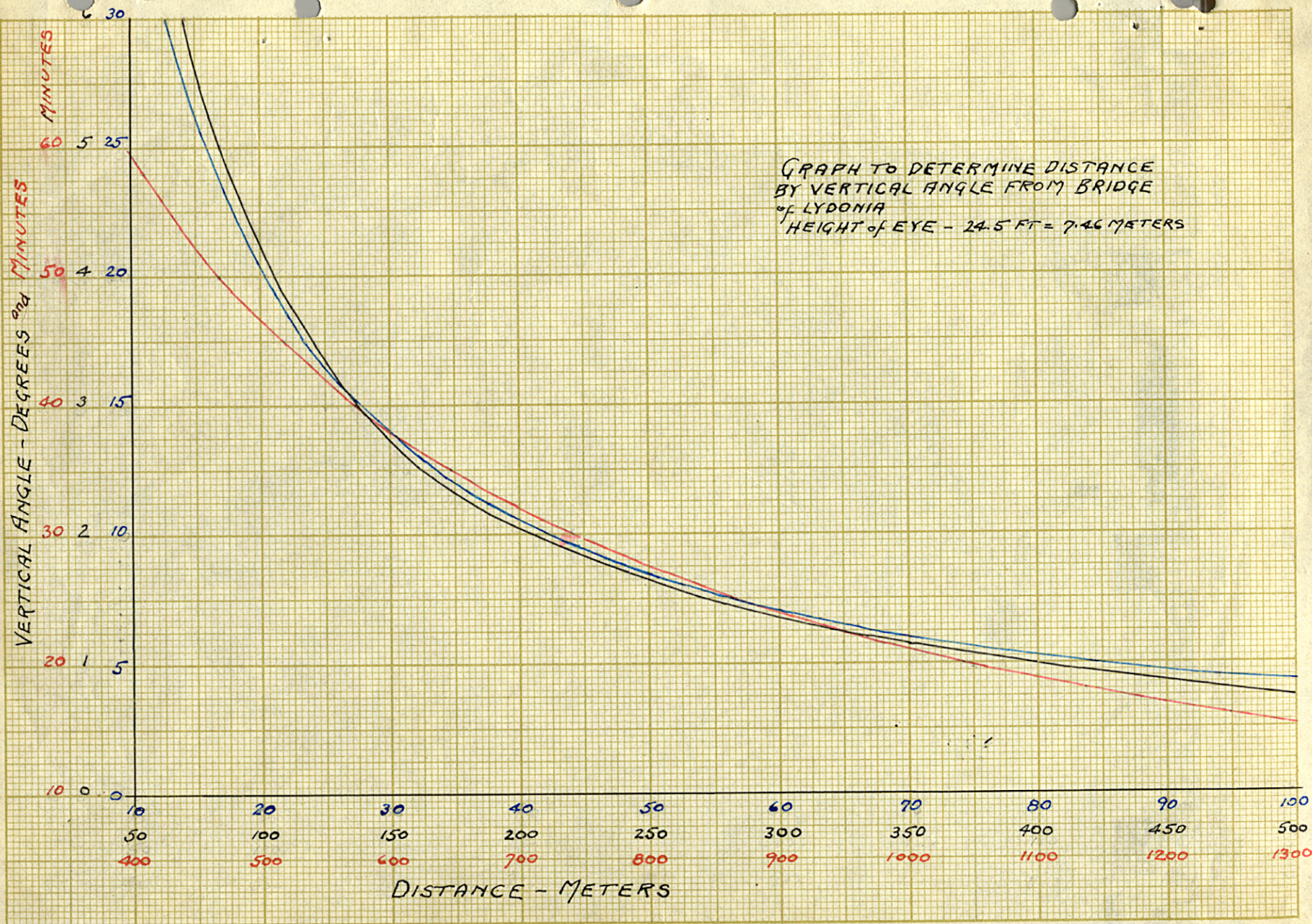


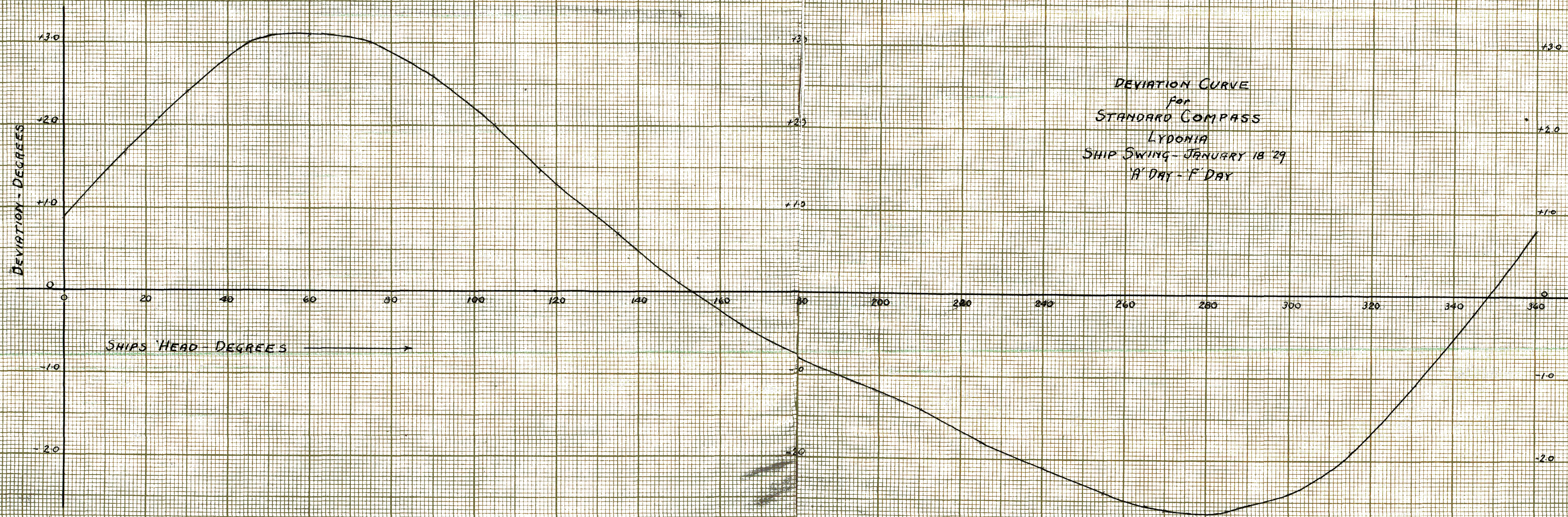
WIND PRESSURE IN POUNDS PER SQUARE FOOT

LEEWAY IN NAUTICAL MILES

GRAPH TO DETERMINE VALUES
OF LEEWAY
WIND VELOCITY IS VELOCITY NORMAL
TO COURSE







DEVIATION CURVE
for
STANDARD COMPASS
LYDONIA
SHIP SWING - JANUARY 18 '29
'A' DAY - 'F' DAY

DEVIATION - DEGREES

SHIPS HEAD - DEGREES →

DEVIATION CURVE
for
STANDARD COMPASS
LYDONIA
SHIP SWING - APRIL 19 1929
'G'DAY - 'L'DAY

